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Patent Claims

- 1. Method for equalizing a received signal in a digital receiver with the aid of a DFE (Decision Feedback Equalizer) structure, the received signal being based on a signal constellation which is one-dimensional or can be transformed to be one-dimensional, characterized in that the coefficients of the DFE are fixed so as to minimize the expected value of the squared real part of the error in the received signal.
- 2. Method according to Claim 1, characterized in that the signal constellation corresponds to a BPSK modulation, and in that the coefficients of the DFE are fixed as follows:

(i)
$$h_{M+1-l}^R = \frac{\sigma^2}{2} f_i^R + \sum_{n=1}^M f_m^R \sum_{n=1}^M h_{n+1-l}^R h_{n+1-m}^R - \sum_{m=1}^M f_m^T \sum_{n=1}^M h_{n+1-l}^R h_{n+1-m}^T$$

$$-h_{M+1-1}^{f} = \frac{\sigma^{2}}{2} f_{i}^{f} - \sum_{n=1}^{M} f_{n}^{R} \sum_{n=1}^{M} h_{n+1-i}^{f} h_{n+1-m}^{R} + \sum_{m=1}^{M} f_{m}^{f} \sum_{n=1}^{M} h_{n+1-i}^{f} h_{n+1-m}^{f}$$

(II)
$$g_{i-M}^R = -\sum_{m=1}^M f_{ii}^R h_{i+1-m}^R - f_{ii}^I h_{i+1-m}^I$$

- 3. Method according to Claim 1, characterized in that the signal constellation corresponds to a GMSK or an OQPSK modulation, and in that the samples are rotated in the receiver with a phase j^{-i} , i denoting a sequential index of the sample.
- 4. Circuit arrangement of a DFE (Decision Feedback Equalizer) for equalizing a received signal in a digital receiver, the received signal being based on a signal constellation which is one-dimensional or can be transformed to be one-dimensional, characterized in that [lacuna] a circuit for calculating the coefficients of the DFE in such a way that the expected



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value of the squared real part of the error in the received signal is a minimum.